## 95 Eradication strategies for early *Pseudomonas aeruginosa*: a meta-analysis

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**Aims:** To determine whether antibiotic treatment of early *P. aeruginosa* infection in children and adults with cystic fibrosis eradicates the organism and improves clinical and microbiological outcome.
**Methods:** A systematic review and meta-analysis of relevant trials identified by searching the Cochrane Cystic Fibrosis and Genetic Disorders Group Trials Register. We included randomised controlled trials of people with cystic fibrosis, in whom *P. aeruginosa* had recently been isolated from respiratory secretions. We compared combinations of inhaled, oral or intravenous antibiotics with placebo or usual treatment (or both) or other combinations of inhaled, oral or intravenous antibiotics. We excluded non-randomised trials, cross-over trials, and those utilising historical controls. Both authors independently assessed selected trials, assessed methodological quality and extracted data.
**Main results:** The search identified 15 trials. Three trials (69 participants) were eligible for inclusion. There is evidence from two randomised controlled trials, of questionable methodological quality, that treatment of early *P. aeruginosa* infection with inhaled tobramycin results in microbiological eradication of the organism from respiratory secretions more often than placebo and that this effect may persist for up to 12 months, however incomplete data from one of the trials precludes an accurate analysis.
One randomised controlled trial of oral ciprofloxacin and nebulised colisitin versus usual treatment was identified. The results suggested treatment of early infection results in microbiological eradication of *P. aeruginosa* more often than usual treatment, after two years, OR 0.12 (95% CI 0.02 to 0.79)
**Conclusions:** From the three trials included in this review, there is some evidence that antibiotic treatment of early *P. aeruginosa* results in short-term eradication but it remains uncertain whether there is clinical benefit to people with cystic fibrosis.

## 96 Economic effects of "first growth" therapy for *Pseudomonas aeruginosa* in Cystic Fibrosis patients – 1995–2005

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**Introduction:** Aggressive treatment of "first growth" *Pseudomonas aeruginosa* (Pa) infection in CF patients attending our clinic has led to a decrease in chronic colonization with Pa from 44% of our pediatric clinic patients in 1994 to 18% in 2005. We have previously reported on the clinical effects of this policy, for example in improving the secular decline in pulmonary function in clinic patients.
**Aim:** We now report the effect on hospital and antibiotic costs for our patients as a result of this approach.
**Subjects and Methods:** CF patients attending our clinic (n = 140, ages 0–18 yr) have sputum or throat cultures taken at each clinic visit. Patients with a "first" positive culture of Pa are treated with 14 days iv Tobramycin and Piperacillin followed by 14 days p.o. Ciprofloxacin and 3–6 months inhaled Colymycin.
**Results:** The decline in Pa infection has had an economic impact, decreasing hospital and antibiotic costs. Although the total number of CF clinic patients has increased, total days spent in hospital has declined, specifically due to a decrease in admissions resulting from pulmonary exacerbations associated with Pa; hospital and home i.v. antibiotic use has declined; as have also the requirements for inhaled (anti-Pseudomonal) antibiotics.
**Conclusion:** Early aggressive treatment of "first growth" Pa can decrease the economic costs of CF management, as well as conferring clinical benefit.

### References

[1] Lillquist et al, Ped Pulm 2004 Suppl 27, p280.

## 97 Early treatment of first *Pseudomonas aeruginosa* isolation in Cystic Fibrosis patients

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**Introduction:** *Pseudomonas aeruginosa* (PA) colonization in cystic fibrosis (CF) patients has a negative effect on pulmonary function and is a predictor of poor survival. There is increasing evidence that early treatment of PA infection could delay chronic infection.
**Aims:**
1. To evaluate the effect of early treatment of first PA infection with oral ciprofloxacin (20–40 mg/kg/day in two doses, for only 21 days) and inhaled tobramycin (300 mg twice daily in 3 cycles of 28 days on and off) according to the Spanish protocol (Canton et al., 2005);
2. To determine the time that the patient remains clear after treatment.

**Methods:** We included patients with the first PA isolation between July 2002 to July 2004. All the patients were treated as mentioned above. Samples for microbiology analysis were taken monthly. PA was considered eradicated when respiratory cultures were negative over one year after the first isolation.
**Results:** Eighteen patients received treatment (8 females and 10 males; 1–13 years, mean age: 7.5 years). All the patients had a negative culture after the first month of therapy. The mean time of PA–free period was 15.1 months (3–36 months). Fourteen patients were successfully treated, as 1 year of PA-free was documented by negative cultures. No new chronic colonization or resistance was detected.
**Conclusions:** Early combined treatment of first PA isolation was effective to decrease the prevalence of chronic colonization with PA.

## 98 Early eradication therapy for *Pseudomonas aeruginosa*: impact of effective communication between the laboratory and clinical staff

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**Aims:** Early eradication therapy may delay the onset of chronic infection with *Pseudomonas aeruginosa* in patients with CF. We assessed the impact of written and verbal flagging of laboratory reports on the time to commencement of antibiotic therapy after isolation of *P. aeruginosa*.
**Methods:** The study was conducted at the Regional Paediatric CF Unit in Leeds, UK. We reviewed all episodes of eradication therapy between 1st January 2000 and 31st December 2004. Between 2000 and mid-2001 the laboratory did not flag *P. aeruginosa* as being from patients who qualified for eradication therapy. Between mid-2001 to mid-2004 a written flag was placed on the report to identify qualification for eradication therapy. From mid-2004 this was further enhanced by an additional telephone call to the clinical team. The time between issuing the laboratory report and commencement of eradication therapy was determined for each calendar year.
**Results:** Complete data was available on 223 episodes of eradication therapy in 118 patients. Flagging reports reduced the mean time to commencement of therapy from 14.7 days in 2000 to 8.1 days in 2004. Overall the mean time to commencing therapy after flagged reports was 10.8 days compared to 15 days for non-flagged reports ($p = 0.002$).
**Conclusions:** The use of flagged reports resulted in faster commencement of eradication therapy for early *P. aeruginosa* colonization. Larger studies are needed to assess the clinical impact of this development.